## Personal Details

# Chunan TANG

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## Membership

- Vice President of the Chinese Society of Rock Mechanics and Engineering CSRME (2003-2012, 2016-2019)
- National Group Chairman of International Society of Rock Mechanics and Engineering (2007-2012)
- President of international exchange committee of the Chinese Society of Rock Mechanics and Engineering CSRME (2016-)

## Academic Background

- Post-doctoral (1991 - 1992) Majoring in Rock Mechanics, Imperial College, London, UK.
- Ph.D. (2015 - 2018) Majoring in Mining Engineering, Northeastern University, China
- M.Sc (1982 - 1984) Majoring in Mining Engineering, Northeastern University, China
- B.Sc (1978 - 1982) Majoring in Mining Engineering, Central South University, China

## Former and Current Appointments

- 1984-1992 Associate Professor of Mining Department, Northeastern University, China
- 1993-2005 Professor and Director of Center for Rock Instability and Seismisity Research, Civil and Resources Engineering School, Northeastern University
- 1999-2005 Chair Professor (Cheng Kong Scholar, funded by Ministry of Education, China and Cheung Kong Scholar Programme), Northeastern University, China
- 2006- Professor and Chair, CRISR, Dalian University of Technology, China
- 2017- 2021 (part time) Chair Professor of Structural Geology, University of Geosciences, China

## Overseas Experience

- 1995.11-1996.08 Visiting Scientist to GRC, Laurentian University, Canada.
- 2001.02-2001.03 Visiting Scientist to Rock Engineering Division at Lulea University, Sweden.
- 2004.06-2004.12 Research Associate in the University of Hong Kong
- 2005.08-2005.10 Research Associate in the Hong Kong Polytechnic Universit.
- 2007.06-2007.07 Academic Visitor to Rock Mechanics Laboratory (LMR), Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland
- 2009.06-2009.07 Academic Visitor to Rock Mechanics Laboratory (LMR), Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland
- 2015.10-2015.10 Academic Visitor to Monash University, Australia
- 2017.01-2017-02 Academic Visitor to Monash University, Australia

## Related Papers to Geology

- Tang C.A. & Hudson J.A., 2010. Rock Failure Mechanisms, **CRC, Taylor & Francis Group**, UK.
- Tang C.A., Xu X.H., Hudson J.A., 1993. Rock Failure Instability and Related Aspects of Earthquake Mechanisms, China Coal Industry Press, Beijing
- Tang CA. 1997 Numerical simulation of progressive rock failure and associated seismicity. International Journal of Rock Mechanics and Mining Sciences, 34(2) 249-256.
- Tang C.A, Zhang Y.B, Liang Z.Z, et al. 2006. Fracture spacing in layered materials and pattern transition from parallel to polygonal fractures. Physical Review E, 73:056120.
- Tang C.A, Liang Z.Z, Zhang Y.B, et al. 2008. Fracture spacing in layered materials: A new explanation based on two-dimensional failure process modeling. **American Journal of Science**, 308(1): 49-72.
- Tang C.A, Li S.Z. 2016. Earth evolution as a thermal system. Geological Journal, 51(S1): 652-668.
- Tang C.A, Bao C.Y, Li S.Z, et al. 2016. A stress-rifting origin of Grand Canyon. Science Bulletin, 61(6):495-504.
- Michael J. Heap, Fabian B. Wadsworth, T. Xu, C. Chen, C.A. Tang, 2016. The strength of heterogeneous volcanic rocks: A 2D approximation, **Journal of Volcanology and Geothermal Research**, http://dx.doi.org/10.1016/j.jvolgeores.2016.03.013
- Tang C.A. 2018. Did Earth drive itself to a snowball?. Science Bulletin, 63(16): 1032-1033, https://doi.org/10.1016/j.scib.2018.07.012.
- Tang C.A., Chen T.T.. 2019. Antarctic melting: natural or anthropogenic? Earth Sciences and Subsoil Use, 42(3): 268–278
- Tang C.A, Webb A.A.G, Moore W.B, et al. 2020. Breaking Earth's shell into a global plate network. **Nature Communications**, 11(1): 3621, https://doi.org/10.1038/s41467-020-17480-2.
- Tang C.A., Chen T.T., Gong B.. 2021. Earth's thermal cycles and major geological events. Science China: Earth Science, 64(10): 1821–1824
- Michael J. Heap, Fabian B. Wadsworth, …Tang C.A., 2021. The tensile strength of volcanic rocks: Experiments and models, **Journal of Volcanology and Geothermal Research**, https://doi.org/10.1016/j.jvolgeores.2021.107348

## Leading Projects

- National Natural Science Foundation of China (NSFC) (Grant No. 42050201), Earth breakup: a geodynamic model of Earth evolution based on thermodynamics, 2021 – 2023.
- National Natural Science Foundation of China (NSFC) (Grant No. 51627804), A new optical-fiber microseismic monitor with high sensitivity and wide frequency response for coal and gas outburst, 2017 – 2032.
- The State Key Laboratory of Geological Processes and Mineral Resources (China University of Geosciences (Wuhan)) (Grant No. GPMR202002), Breakup of Earth and the onset of plate tectonics, 2020 – 2022.
- National Natural Science Foundation of China (NSFC) (Grant No. 51579031), Study of the mechanism and failure processes of slopes based on the small deformation and large displacement method, 2016 – 2019.
- National 973 Program for Fundamental Research, Rock engineering hazards and its monitoring and modeling, 2014 – 2018.
- National Natural Science Foundation of China (NSFC) (Grand No. 50820125405), international collaboration program on rockbursts and associated seismicity between China and Canada, 2008-2012.
- National Science Foundation Project for Outstanding Young People (Grand No. 59525408), Rockburst mechanism and method of microseismic monitoring, 1996-1999.

## Scientific Expedition


As a team leader, I attended Joint Arctic expedition by Eurasian scientists from Aug. 2–16, 2019 organized by the Chinese Ministry of Science and Technology, the Chinese Association for Science and Technology, and the Chinese Society of Rock Mechanics and Engineering. The members of the expedition team were academicians, scientists and young researchers from Norway, Japan, Hong Kong, and PR China. During the expedition, we crossed the Isfjord, Consfjord, Monaco Glacier, visited the Chinese Arctic Yellow River Station, and held academic discussions with Arctic research institutions including the Arctic Research Center and the Arctic University Alliance. A seminar was held at the University Centre in Svalbard (UNIS). In addition, we used the expedition as an opportunity to investigate the mechanism of polar melting and explore the impact of climate warming on human activities through monitoring and surveying. We studied polar natural disaster patterns in the freezing and thawing environment, and discussed the development strategy of rock mechanics and rock engineering in this extremely cold region.

## Honors and Awards

- 1991 British Council Fellowship Award
- 1994 Second Class Award of Science and Technology issued by Ministry of Education, P.R.China
- 1994 The 4th Youth Science and Technology Award by National Society of Science and Technology
- 2001 Second Class Award of Natural Science issued by Ministry of Education, P.R.China
- 2002 First Class Award of Science and Technology issued by National Metallurgy Association
- 2002 Chairman of the 2nd International Symposium on New Development in Rock Mechanics.
- 2004 Second Class Award of Science and Technology issued by Chinese Government.
- 2009 Chairman of the 7th International Symposium of Rockbursts and Seismicity in Mines, China.
- 2012 Outstanding Award issued by CSRME for Rockburst modeling and monitoring
- 2014 First Class Award issued by CSRME for slope stability modeling and monitoring
- 2019 Outstanding Award issued by CSRME for Rock failure instability research

## Biography

Dr. Tang, as a Chair Professor (funded by Cheung Kong Scholar Programme from State Education Ministry), is the Director of the Deep Underground Research Center (DURC) of Dalian University of Technology, and the Chief Professor of Structural Geology (Part-time), University of Geosciences (Wuhan), China. He was also the Vice President of the Chinese Society of Rock Mechanics and Engineering CSRME, and was the China National Group Chairman of International Society of Rock Mechanics. In 1984, he started his Ph.D research, in Northeastern University, Shenyang, P.R.China, and got his Ph.D in 1988. In 1991, he continued his post-doctoral work in Imperial College, London, UK. Then, as an academic visitor, he had lots of experience working in Canada, Sweden, Singapore, Switzerland and Hong Kong. He leads several major research projects in rock mechanics, especially on rock failure process analysis and monitoring in civil engineering, and is the chief scientist for a National 973 program for fundamental research. His work is funded by the “Trans-Century Training Programme Foundation for Outstanding Young Scholars in China” from the State Education Ministry and by the "Special Natural Science Foundation for Outstanding Young Scholars in China" from National Nature Science Foundation. So far, he has published more than 300 technical papers on rock failure mechanisms and civil engineering, and is the author of five Chinese books of rock mechanics and the principle author of “Rock Failure Mechanism” published by CRC (Taylor & Francis Group, 2010, UK).